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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,847	01/29/2004	Giovanna Malagnino	000500-370	2360

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EXAMINER

ABDELWAHED, ALI F

ART UNIT PAPER NUMBER

3722

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/765,847

Applicant(s)

MALAGNINO ET AL.

Examiner

Ali Abdelwahed

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-20,22 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 4,6,21,23 and 28-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 20, 21, and 25 are objected to because of the following informalities:

It is suggested that in:

Claim 20, line 1, delete "15" and insert -19--.

Claim 20, line 2, before "...angle..." insert -the helix--.

Claim 21, line 1, delete "15" and insert -20--.

Claim 25, line 2, delete "front" and insert -rear--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 11-13, 15-18, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,222,847 to Hiyama et al. in view of U.S. Patent No. 5,487,626 to Von Holst et al.

Hiyama et al. discloses a tap (10) comprising an elongated body (11) defining an axis of rotation (X) and including axial front and rear end regions (see fig.1). The front end region including a threading portion (12) having teeth defining a helical thread-cutting structure that is chamfered at a rear portion thereof (see fig.1), and at least one

Art Unit: 3722

helical flute (13a-c) formed in an outer periphery of the body and interrupting the thread-cutting structure (see figs. 1, 2). The at least one flute comprising interconnected flanks (see figs. 1, 2). The at least one flute consists of three flutes distributed substantially evenly about a circumference of the body (see fig. 2). Also including a connector portion at the rear region of the body (see fig. 1).

However, Hiyama et al. fails to teach steam tempering the exposed surfaces of the flanks, and coating the teeth of the thread-cutting structure by physical vapor deposition using one of TiCN, TiN, TiAlN, TiAlCN, CrN, or TiAlN/WC/C. Nevertheless, Von Holst et al. teaches the aforementioned limitations (see columns 1 and 2, lines 20-27 and 52-67, respectively). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the tap of Hiyama et al., in view of Von Holst et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of increasing the hardness and wear strength of the tap, thereby prolonging the tool life.

Claims 2, 3, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 4,507,028 to Matsushita.

Hiyama et al., as modified, discloses the claimed invention except for a helix angle of the flute relative to the axis being between  $46^{\circ}$  and  $55^{\circ}$ , and preferably between  $48^{\circ}$  and  $50^{\circ}$ . However, Matsushita teaches a cutting tool (11) comprising the aforementioned limitations (see column 5, lines 20-28). Therefore, it would have been

Art Unit: 3722

obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Matsushita, such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of enhancing the cutting efficiency of the tap.

Claims 7 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,158,304 to Packer et al.

Hiyama et al., as modified, discloses the claimed invention except for a rake angle of the thread cutting structure being in the range of 8°-16°. However, Packer et al. teaches a cutting tool (10) comprising the aforementioned limitation (see column 6, lines 45-47). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Packer et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitation for the purpose of enhancing the cutting efficiency of the tap.

Claims 8, 9, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,217,267 B1 to Sugano et al.

Hiyama et al., as modified, discloses the claimed invention except for the body comprising high-speed steel having a hardness of 63.5-66.5 HRC. However, Sugano et

Art Unit: 3722

al. teaches a tap (10) comprising the aforementioned limitations (see column 13, lines 13-14). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Sugano et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of increasing the hardness and wear strength of the tap.

Claims 10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claims 1 and 15 above, and further in view of U.S. Patent No. 6,220,797 B1 to Ishii et al.

Hiyama et al., as modified, discloses the claimed invention except for the body comprising powder steel material having a hardness of 64.5-67.5 HRC. However, Ishii et al. teaches a cutting tool (10) comprising the aforementioned limitation (see column 5, lines 10-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Ishii et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitation for the purpose of increasing the hardness and wear strength of the tap.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. in view of Von Holst et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,345,941 B1 to Fang et al.

Hiyama et al., as modified, discloses the claimed invention except for the at least one flute consisting of four flutes distributed substantially evenly about a circumference of the body. However, Fang et al. teaches a tap (10) comprising the aforementioned limitations (see figs.1, 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the tap of Hiyama et al., as per the teachings of Fang et al., such that it would provide the tap of Hiyama et al. with the aforementioned limitations for the purpose of enhancing the cutting efficiency of the tap.

### ***Response to Arguments***

Applicant's arguments filed on October 14, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both the Hiyama et al. and Von Holst et al. references teach taps utilized in processing extremely hard materials, such as titanium alloys. The Hiyama et al. reference teaches the basic structure of the claimed invention, and the disclosure of the Von Holst et al. reference

Art Unit: 3722

teaches the concept of having taps with steam tempering the exposed surfaces of the flanks, and coating the teeth of the thread-cutting structure by physical vapor deposition using one of TiCN, TiN, TiAlN, TiAlCN, CrN, or TiAlN/WC/C for improving the tool life of the tap being well known in the art. The Von Holst et al. reference was combined with the Hiyama et al. reference to merely teach the concept of the aforementioned limitation, and applied to the Hiyama et al. reference to enhance the overall strength of the tap taught by Hiyama et al., and it would have been obvious to one of ordinary skill in the art to combine the hardening treatments taught by Von Holst et al. with the tap of Hiyama et al. for increasing its strength. The Hiyama et al. and Von Holst et al. references combined remain sufficient in teaching the limitations of the present invention as claimed. Examiner therefore reasserts the rejections made above.

### ***Allowable Subject Matter***

Claims 4, 6, 21, 23, and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within



Art Unit: 3722

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ali Abdelwahed whose telephone number is (571) 272-4417. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the examiner or the examiner's supervisor.

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12/15/2005

  
BOYER D. ASHLEY  
PRIMARY EXAMINER